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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,822	10/30/2003	Yoshihiro Iwashita	117640	7183
25944	7590	03/11/2005		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER CHANG, CHING	
			ART UNIT 3748	PAPER NUMBER

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,822

Applicant(s)

IWASHITA ETAL.

Examiner

Ching Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7,9,10 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-7,9-10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to the amendment filed on December 13, 2004.

Claim Rejections - 35 USC § 112

1. Claims 1-3, 5-7, 9-10, and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

“ of fuel “ after “after combustion “ in claim 1, and “ of the fuel “ after “ after the combustion “ in claim 5 are new matter.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Whiting et al. (US Patent 6,347,619).

Whiting discloses a device (60) for controlling an internal combustion engine (10) with a variable valve system (56) wherein, while a piston (48) of the engine descends just after combustion of fuel in a cylinder of the engine, an intake valve (18) is opened by the variable valve system for the intake valve such that intake air is supplied into the cylinder from the engine intake system, and pressure in the cylinder is lowered by opening an exhaust valve (20) by the variable valve system for the exhaust valve before said intake valve is opened just after combustion of the fuel (See Figs. 3 and 5); wherein, when the pressure in the cylinder becomes lower than the atmospheric pressure, said intake valve is opened by said variable valve system for the intake valve such that the intake air is supplied into the cylinder from an air intake system of the engine; wherein, said variable valve system is an electromagnetic actuator (56).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. ***Claims 1, 3, 6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama et al. (US Patent 4,628,880) in view of Whiting et al. (US Patent 6,347,619).***

Aoyama discloses a device (66, 68, 70) for controlling an internal combustion engine (10) with a variable valve system (48, 50, 52, 53) wherein, while a piston of the engine descends just after combustion of fuel in a cylinder of the engine, an intake valve (14, 16) is opened by the variable valve system for the intake valve such that intake air is supplied into the cylinder from the engine intake system, and pressure in the cylinder is lowered by opening an exhaust valve (18, 20) before said intake valve is opened (See Fig. 6); wherein, when the pressure in the cylinder becomes lower than the atmospheric pressure, said intake valve is opened by said variable valve system for the intake valve such that the intake air is supplied into the cylinder from an air intake system of the engine.

Aoyama discloses the invention as recited above, however, fails to disclose the exhaust valve being opened by an electromagnetic actuator just after combustion of the fuel.

The patent to Whiting on the other hand, teaches that it is conventional in the engine exhaust gas recirculation system art, to utilize an electromagnetic actuator (56) to open an exhaust valve (20) just after combustion of the fuel. (See Figs. 3, 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the electromagnetic actuator to open the exhaust valve just after combustion of the fuel as taught by Whiting in the Aoyama device, since

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the use thereof would provide an improved engine valve timing device to optimize the emissions reduction.

6. ***Claims 2, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama in view of Whiting (as applied to claim 1), and further in view of Mori et al. (US Patent 3,953,969).***

The modified Aoyama device, however, fails to disclose secondary air is required in exhaust system of the engine.

The patent to Mori on the other hand, teaches that it is conventional in the engine art, to utilize secondary air (through 1, 2, 3) for an engine exhaust system.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized secondary air supplied to the engine exhaust system as taught by Mori in the modified Aoyama device, since the use thereof would provide an improved engine with more purified exhaust gas emission.

7. ***Claims 5, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoyama in view of Whiting (as applied to claim 1 above) in view of Izuo (US Patent 5,611,303).***

The modified Aoyama device, however, fails to disclose the operation of the engine from a 4-stroke operation to a 2-stroke operation.

The patent to Izuo on the other hand, teaches that it is conventional in the engine valve operating apparatus art, to utilize an engine valve operating apparatus (10), ECU

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(90), and valve timing changing unit (90) to change a combustion cycle of the engine from a 4-stroke mode to a 2-stroke mode, under a predetermined operating condition.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the ECU with the valve timing changing unit as taught by Izuo in the modified Aoyama device, since the use thereof would provide an improved and more flexible 4-stroke engine, which can be operated as a 2-stroke engine to meet the power output requirement under different operating conditions.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3, and 7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

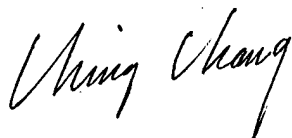
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ching Chang whose telephone number is (571)272-4857. The examiner can normally be reached on M-Th, 7:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571)272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner



Ching Chang



THOMAS DENION
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TECHNOLOGY CENTER 3700